

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Docket No. 7979

11/09/98

Assistant Commissioner for Patents  
Washington, D.C. 20231

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JC135 11/05/98

Sir:

Transmitted herewith for filing is the patent application of Inventor(s):  
**Craig E. Maddox and Daniel F. White**

For: **CASH DRAWER BILL DISPENSER**

Enclosed are also:

X 7 Sheet(s) of Drawings  
X An assignment of the invention to NCR Corporation  
   A certified copy of an application

**CLAIMS AS FILED**

FOR	Number Filed		Number Extra		Rate		Basic Fee (\$790)
Total Claims	19	-20 =	0	X	\$ 22	=	\$ 0
Independent Claims	1	-3 =	0	X	\$ 82	=	\$ 0
Multiple Dependent Claims	0			X	\$270	=	\$ 0
					<b>Total Filing Fee</b>	=	<b>\$ 790</b>

X Please charge the above filing and recording fees to the account of NCR Corporation, Deposit Account No. 14-0225.

Please have all communications concerning this application and the recorded Assignment directed to:

Paul W. Martin  
NCR Corporation  
Law Department, ECD-2  
101 W. Schantz Avenue  
Dayton, Ohio 45479-0001

Our telephone number is: (937) 445-2990.

Respectfully,

Attorney for: Craig E. Macdox et al.

<b>CERTIFICATE OF MAILING</b> <b>"EXPRESS MAIL"</b>	
"Express Mail" Mailing Label Number	<u>EM058827824US</u>
Date of Deposit	<u>November 9, 1998</u>
<p>I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" Service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D C 20231</p> <p style="text-align: center;"><u><i>Karen A. Church</i></u></p> <p style="text-align: center;">(type or print name of person certifying)</p> <p style="text-align: center;"><u><i>Karen A. Church</i></u></p> <p style="text-align: center;">Signature</p>	

# APPLICATION FOR LETTERS PATENT OF THE UNITED STATES

CERTIFICATE OF MAILING "EXPRESS MAIL"	
"Express Mail" Mailing Label Number <u>EM058827824US</u>	
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I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" Service under 37 CFR 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231	
<u>Karen A. Church</u> (type or print name of person certifying)	
<u>Karen A. Church</u> Signature	

## SPECIFICATION

To all whom it may concern:

Be It Known, That we, **Craig E. Maddox** and **Daniel F. White**, citizens of the United States of America, both residing at Lilburn, Georgia, have invented certain new and useful improvements in a **CASH DRAWER BILL DISPENSER**, of which I declare the following to be a full, clear and exact description:

1

## CASH DRAWER BILL DISPENSER

2

## BACKGROUND OF THE INVENTION

3        The present invention relates generally to cash registers, and, more  
4 specifically, to cash drawers therein.

5        A cash register includes a drawer having several compartments or bins in  
6 which are stored various denominations of paper currency bills and metallic  
7 coins. A typical cash drawer is in the form of a removable till containing the  
8 bins, and each of the bins for the paper bills includes a bill holder which sits atop  
9 a stack of bills therein.

10       Bill holders come in various configurations and typically include a  
11 cantilever or flapper which is spring loaded and positionable in an up position for  
12 allowing access to the bin for adding or removing bills, and in a down position  
13 providing a compression force atop the stack of bills to maintain them in place.

14       However, in order for a clerk to add or remove bills from the bins, the bill  
15 holder must be lifted up for allowing one or more bills to be inserted or removed  
16 from the bins.

17       Accordingly, it is desired to improve the bill holder to perform the  
18 additional function of at least dispensing individual bills without lifting the bill  
19 holder.

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## BRIEF SUMMARY OF THE INVENTION

2       A bill dispenser includes a cantilever and traction wheel attached thereto.  
3       The wheel includes a traction surface around a perimeter thereof for frictionally  
4       engaging a currency bill. Movement of the traction surface atop the bill is used  
5       for dispensing the bill from its bin.

6

## BRIEF DESCRIPTION OF THE DRAWINGS

7       The invention, in accordance with preferred and exemplary embodiments,  
8       together with further objects and advantages thereof, is more particularly  
9       described in the following detailed description taken in conjunction with the  
10      accompanying drawings in which:

11       Figure 1 is an isometric view of an exemplary cash register having a cash  
12      drawer with a bill dispenser in accordance with an exemplary embodiment of the  
13      present invention.

14       Figure 2 is a top, plan view of one of several bill compartments in the cash  
15      drawer illustrated in Figure 1 and taken along line 2-2 showing a bill dispenser  
16      in accordance with an exemplary embodiment of the present invention.

17       Figure 3 is a side elevational view, partly in section of the bill dispenser  
18      in the compartment illustrated in Figure 2 and taken along line 3-3.

19       Figure 4 is an isometric view of the bill dispenser illustrated in Figure 2 in  
20      a lifted or raised position for allowing access into the bill compartment.

21       Figure 5 is a top, plan view of a bill compartment including a bill dispenser  
22      in accordance with an alternate embodiment of the present invention.

23       Figure 6 is a side elevation view, partly in section of the bill dispenser  
24      illustrated in Figure 5 and taken along line 6-6.

25       Figure 7 is an enlarged view of an exemplary traction wheel of the bill  
26      dispenser illustrated in Figures 5 and 6.

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## DETAILED DESCRIPTION OF THE INVENTION

2       Illustrated in Figure 1 is a cash register 10 which may taken any  
3 conventional form for a typical Point Of Sale (POS) terminal for example. The  
4 register 10 includes a cash drawer 12 which automatically is ejected open when  
5 required by the register in a typical sales transaction to expose a plurality of  
6 currency compartments or bins 14 therein. One group of the bins 14 is arranged  
7 in a back row configured in width, length, and depth for storing flexible paper  
8 currency bills 16 in corresponding denominations. A front row of smaller bins  
9 is provided for storing metallic coins in various denominations typically aligned  
10 with respective ones of the rear bins. The cash drawer 12 is typically in the  
11 form of a removable tray or till which may be metal or plastic having integral  
12 dividers which define the several bins 14.

13 As shown generally in Figure 1 and in more detail in Figure 2, each of the  
14 bins 14 configured for storing the currency bills 16 includes a respective bill  
15 holder and dispenser 18 in accordance with an exemplary embodiment of the  
16 present invention. The dispenser 18 provides a clamping force in its down  
17 position to hold a stack of bills in the bin, and also allows improved manual  
18 dispensing of individual bills by a clerk when desired. The dispenser 18 also has  
19 an up or lifted position for replenishing the stack of bills in the corresponding  
20 bins, or removing groups of the bills if desired.

21 The bill dispenser 18 is illustrated in more detail in Figures 2 and 3 and  
22 includes a frame in the form of a cantilever 20 having a base 20a at a proximal  
23 end which is pivotally mounted in the bin to freely suspend a tip 20b at an  
24 opposite distal end thereof. A traction wheel 22, which is preferably made of  
25 rubber, is pivotally attached to the cantilever adjacent the tip, and includes a  
26 traction surface 22a around a perimeter thereof for frictionally engaging and  
27 dispensing individual ones of the bills 16 in contact therewith.

28 The traction wheel 22 may be suitably incorporated in any type of

1 conventional bill holder for converting it to the additional purpose of bill  
2 dispensing. For example, the cantilever 20, but for the incorporated traction  
3 wheel 22, is otherwise conventional and may be configured and operated in a  
4 conventional manner like that found in U.S. Patent 3,892,309, assigned to the  
5 present assignee. As shown in Figures 2 and 3, the cantilever 20 is pivotally  
6 attached to a corresponding removable mounting bracket 24. The base of the  
7 bracket 24 is configured for being removably mounted in a corresponding slot at  
8 the back of the till 12 for assembly and replacement purposes.

9 The bracket 24 includes a pair of outboard arms having side apertures at  
10 distal ends thereof which receive corresponding mounting pins disposed at the  
11 base end in corresponding outboard arms of the cantilever 20 for pivotally  
12 mounting the cantilever to the bracket. The bracket 24 also includes a center  
13 portion between the outboard arms having an inclined distal end which forms a  
14 cantilever leaf spring. The base of the cantilever 20 has a corresponding center  
15 portion configured in the form a cam which engages the leaf spring on the  
16 bracket. The cantilever 20 has a down position atop the stack of bills 16 as  
17 shown in Figure 3 maintained by spring force from the bracket leaf spring against  
18 the cam of the cantilever. The cantilever also has a raised or up position  
19 illustrated in phantom line in Figure 3 and in solid line in Figure 4 which extends  
20 generally perpendicularly upwardly from the bills in the bins for allowing access  
21 thereto, with the up position being maintained by the spring force on the cam at  
22 the cantilever base.

23 As shown in Figures 3 and 4, means are provided for manually engaging  
24 the traction surface 22a against the top bill 16 in the bin 14 for translation  
25 thereof to the front of the bin to eject the bill at least in part therefrom. In the  
26 exemplary embodiment illustrated, the engaging means include pivotally  
27 attaching the traction wheel 22 to the cantilever for selective rotation manually  
28 by the clerk. This is effected by providing a housing or frame 26 attached to the  
29 bottom of the cantilever 20 for mounting the traction wheel 22 centrally therein

1 using a center shaft 28. The shaft 28 allows the wheel to be manually rotated  
2 on the otherwise stationary cantilever 20 for use in dispensing individual bills in  
3 turn with the cantilever in its down position atop the bills. The traction wheel  
4 22 provides a compressive holding force atop the stack of bills for functioning  
5 as a typical bill holder, yet when the traction wheel 22 is manually rotated,  
6 individual bills may be dispensed.

7 More specifically, in the exemplary embodiment illustrated in Figures 3 and  
8 4, the engaging means preferably also include a plurality of circumferentially  
9 spaced apart recesses or notches 30 in the perimeter of the traction wheel which  
10 separate the traction surface 22a into a corresponding plurality of circumferential  
11 segments at the top of corresponding teeth. The notches 30 are sized and  
12 configured for manually rotating the wheel by finger to engage the traction  
13 surface segments in turn upon an individual bill for sequential translation thereof.

14 As shown in Figure 3, by spinning the traction wheel 22 in the  
15 counterclockwise rear direction illustrated, the top bill 16 can be dispensed  
16 forwardly inside the bin 14. The spring force from the bracket 24 provides some  
17 downward force upon the traction wheel 22, and the manual spinning thereof  
18 by a clerk provides additional downward force which effects frictional  
19 engagement between individual ones of the traction surfaces 22a in contact with  
20 the top of the bill 16 for sliding it forwardly atop the next underlying bill in the  
21 stack.

22 In the preferred embodiment, the individual notches 30 are about as wide  
23 as corresponding ones of the traction surfaces 22a along the circumferential  
24 direction on the perimeter of the wheel for both providing sufficient space for  
25 inserting a finger in a notch 30 and improving the traction effect of the surfaces  
26 22a. Each traction surface 22a is preferably generally flat or slightly convex and  
27 has a corresponding, generally sharp leading edge which first contacts the top  
28 of a bill as the wheel is rotated. The traction surface 22a, and preferably the  
29 entire wheel, is formed of a suitable traction material such as rubber for effecting

1 a frictional dispensing force  $F$ , as illustrated in Figure 3, as the wheel is rotated  
2 or spun for dispensing the bills. Although the notches 30 may be eliminated in  
3 an alternate embodiment, see below, having a circumferentially continuous  
4 traction surface 22a, in the preferred embodiment the relatively large notches 30  
5 are preferred for maximizing the ease of use and bill dispensing capability of the  
6 traction wheel 22.

7 As shown in Figure 3, the traction wheel 22 includes a bottom having a  
8 respective one of the traction surfaces 22a engaging the top of the bill 16, and  
9 the cantilever tip 20b defines a guide having a predetermined vertical gap relative  
10 to the wheel bottom and bill top for guiding the bill upon dispensing thereof.  
11 The cantilever tip 20b does not normally contact the top of the bills, which  
12 instead are held in place by the traction wheel 22 itself. The cantilever guide  
13 20b is positioned instead to guide individual bills being dispensed to prevent  
14 excessive vertical movement or buckling thereof during the dispensing process.

15 Since the bill dispenser 18 is configured for specific use in combination  
16 with the till 12, the corresponding bins 14 are preferably modified to include an  
17 arcuate front ramp 32 as shown in Figure 3 which is generally concave for  
18 turning or guiding upwardly the leading edge of the bills as they are being  
19 dispensed. As the traction wheel 22 is rotated to dispense an individual bill  
20 forwardly in the bin 14, the leading edge of the bill engages the ramp 32 and is  
21 guided upwardly so that it is conveniently positioned for being manually grabbed  
22 and removed the clerk.

23 Furthermore, the front ramp 32 as shown in Figure 2 is preferably knurled  
24 or rough in texture using exemplary crossing score lines 34 to frictionally restrain  
25 underlying bills as a top bill is being dispensed. In the event the traction wheel  
26 22 dispenses more than the top bill due to excessive friction between the top bill  
27 and underlying bills, the underlying bills will engage the scores 34 on the ramp  
28 32 and meet additional frictional resistance for improving the dispensing of only  
29 the single top bill from the bin.

1        The introduction of the traction wheel 22 into the cantilever 20 is a  
2 relatively simple modification which maintains the bill holding capability of the  
3 cantilever by the traction wheel 22 itself, yet also provides the additional  
4 function of manual bill dispensing by simple rotation of the traction wheel when  
5 desired. The bill dispenser 18 is simply operated by lowering the cantilever 20  
6 to position the traction wheel 22 atop the stack of bills, and then manually  
7 rotating and pressing downwardly the traction wheel in a rearward direction from  
8 the top thereof to partially dispense the top bill forwardly. The wheel 22 is  
9 rotated as much as necessary to move the bill forwardly in the bin and up the  
10 ramp 32 until it is in position for being manually removed by the clerk.

11       An additional advantage of operating the bill dispenser 18 is that the  
12 partially dispensed bill may then be manually pulled by the clerk which in turn  
13 automatically and additionally rotates the traction wheel 22 by friction from the  
14 pulled bill, which autofeeds the next lower bill directly beneath the bill being  
15 dispensed. As the top bill is yanked from the bin 14, the weight of the traction  
16 wheel 22 itself sitting atop the bill maintains sufficient frictional engagement  
17 force therewith which causes the wheel to rotate further by pulling of the bill  
18 thereunder. Inertia of the traction wheel 22 causes additional rotation thereof  
19 which partially ejects the underlying bill. The traction wheel may then be  
20 additionally turned if desired for further dispensing that bill, or that bill may be  
21 manually grabbed and pulled by the clerk autofeeding yet another underlying bill.

22       In a preferred embodiment, the traction wheel 22 is freely rotatable in  
23 opposite directions on its shaft 28 so that a clerk may rotate the wheel in a  
24 forward or clockwise direction, see Figure 3, to reinsert any partially dispensed  
25 bill if desired, or to resupply the bin with bills individually without lifting the  
26 cantilever 20.

27       The relatively simple traction wheel 22 may be readily incorporated into  
28 various forms of bill holders for use therewith. It therefore minimizes the  
29 required changes in the bill holder and has relatively low cost. And, most

1 significantly, it provides the ability to dispense individual bills from the bins in a  
2 simple manner without lifting the bill dispenser itself.

3 Another form of the bill dispenser, designated 36, is illustrated in Figures  
4 5-7. In this embodiment, the cantilever, designated 38, is pivotally attached at  
5 its proximal, base end to a corresponding tip end of a base lever 40 defining a  
6 second cantilever having a root end pivotally mounted by a shaft 42 extending  
7 through a pair of vertical slots 44 in the till. The shaft 42 and slots 44 allow the  
8 articulated cantilever 38 and base lever 40 to be pivoted together upwardly for  
9 allowing unobstructed access into the corresponding bin 44 while allowing the  
10 assembly to be lowered atop the stack of bills 16 irrespective of the height of  
11 the bill stack.

12 A tension coil spring 46 extends between the base lever and cantilever  
13 and is attached thereto at opposite ends thereof. The cantilever and base lever  
14 are joined together in a generally inverted V-shape with an obtuse joining angle  
15 therebetween, and the spring 46 provides retraction force to pull the distal end  
16 of the cantilever 38 toward the root end of the base lever 40 for minimizing that  
17 obtuse angle.

18 A push button or pad 48 is provided or defined atop one of the levers  
19 38,40 near the intersection point thereof for manually depressing downwardly  
20 both levers against the retraction force from the spring to translate the traction  
21 wheel, designated 50, atop the bill 16 for dispensing thereof.

22 In the first embodiment disclosed above, the traction wheel 22 is freely  
23 rotatable, and is manually rotated for dispensing an individual bill. In the  
24 alternate embodiment illustrated in Figures 5-7, the traction wheel 50 has a  
25 different, clutch wheel form and preferably does not rotate during the dispensing  
26 operation, with its perimeter traction surface 50a instead engaging the bill 16  
27 using the articulated cantilever 38 and base lever 40 in a pumping manner.

28 More specifically, the means for manually engaging the traction surface  
29 50a against the bill for translation thereof further include a ratchet in the form

1 of a wheel 52 suitably attached to the traction wheel 50, and a corresponding  
2 pawl 54 pivotally attached to the cantilever 38 and operatively engaging the  
3 ratchet 52. The ratchet 52 and pawl 54 prevent forward, clockwise rotation of  
4 the traction wheel 50 upon depression of a push pad 48, and permit only one  
5 way, reverse, counterclockwise rotation of the traction wheel upon release of  
6 the pad 48.

7 The ratchet and pawl allow unrestrained reverse rotation of the traction  
8 wheel 50 as the cantilever 38 is retracted atop the stack of bills. In this way,  
9 reverse frictional force is not created which would return the dispensed bill to its  
10 original position atop the stack. The free reverse movement of the traction  
11 wheel 50 also allows individual bills to be yanked by the clerk and removed from  
12 below the traction wheel without resistance therefrom.

13 The bill dispenser 36 illustrated in Figures 5-7 is operated by initially  
14 lowering the levers 38,40 into the bin 14 for placing the traction wheel 50 atop  
15 the stack of bills 16. Then by manually pushing or depressing the push pad 48  
16 downwardly, the cantilever 38 and base lever 40 are extended in collective  
17 length against the retraction force from the spring 46 which translates forwardly  
18 the traction wheel 50 for frictionally engaging and dispensing at least in part the  
19 top bill 16. Since this downward pumping action of the two levers 38,40  
20 translates the traction wheel 50 toward the front of the bin 14, the ratchet and  
21 pawl prevent forward rotation of the wheel for effecting frictional engagement  
22 of the wheel with the bill 16 for dispensing thereof.

23 Upon removing the depression force from the push pad 48, the retraction  
24 spring 46 is allowed to retract the cantilever 38 against the base lever 40 by  
25 pivoting around the intermediate joint therebetween. In the preferred  
26 embodiment illustrated in Figure 6, an integral tab 56 is attached to the distal  
27 end of the base lever 40 and is configured in arcuate extent to provide an  
28 abutment stop to limit the retraction of the cantilever 38 against the base lever  
29 40 while allowing unobstructed extension of the cantilever 38 therefrom.

1        In a preferred embodiment, the traction wheel 50 is circumferentially  
2 continuous and the traction surface 50a thereof has suitable frictional  
3 performance and may be formed of rubber for example. The traction surface  
4 50a may have small ribs for maximizing frictional engagement with the bills  
5 during dispensing.

6        In the exemplary embodiment illustrated in Figure 5, for example, a pair  
7 of the traction wheels 50 are fixedly attached to a common through-shaft 58  
8 and straddle the distal end of the cantilever 38. The ratchet 52 may be attached  
9 to the side of one of the traction wheels and the pawl 54 may be pivotally  
10 attached to an intermediate portion of the cantilever 38 for engaging the ratchet  
11 52.

12       In the preferred embodiment illustrated in Figures 5 and 6, the bill  
13 dispenser also includes a cooperating fork 60 pivotally mounted at its base end  
14 to the bin, preferably at the root end of the base lever using the common shaft  
15 42. The fork includes a pair of spaced apart fork arms which support the  
16 traction wheels 50 when lifted by extending the opposite ends of the shaft 58  
17 to rest thereatop as illustrated in Figure 5. As shown in Figure 6, the bottom of  
18 the traction wheels 50 extend below the fork 60 for engaging the stack of bills  
19 therebelow. In this way, the cantilever 38 may be lifted alone, or by lifting the  
20 fork 60, and may be pumped for bill dispensing without obstruction from the  
21 fork.

22       The distal ends of the arms of the fork 60 as illustrated in Figure 6  
23 preferably define a predetermined vertical gap relative the bottom of the traction  
24 wheels 50 and the top bill for guiding the bill upon dispensing in a manner similar  
25 to the cantilever tip 20b described above in the first embodiment. Similarly, the  
26 bin 14 may also include the arcuate ramp 32 which cooperates with the bill  
27 being dispensed for guiding it upwardly for being grabbed by the clerk.

28       The first embodiment of the bill dispenser 18 illustrated in Figure 2-4  
29 provides simplicity and ease of use by simply manually spinning the notched

1 traction wheel 22 for dispensing individual bills. The second embodiment of the  
2 bill dispenser 36 illustrated in Figures 5-7 includes additional components which  
3 engage the ratcheted traction wheels 50 with the bills by a simple pumping  
4 action downwardly using the push pad 48. Its additional complexity and  
5 attendant cost may be offset by the ease of its use in view of the substantial  
6 number of bill dispensing repetitions required in a typical work shift.

7 While there have been described herein what are considered to be  
8 preferred and exemplary embodiments of the present invention, other  
9 modifications of the invention shall be apparent to those skilled in the art from  
10 the teachings herein, and it is, therefore, desired to be secured in the appended  
11 claims all such modifications as fall within the true spirit and scope of the  
12 invention.

13 Accordingly, what is desired to be secured by Letters Patent of the United  
14 States is the invention as defined and differentiated in the following claims:

CLAIMS

1. A dispenser for a currency bill stored in a bin in a cash register till comprising:

    a cantilever having a base at one end for being pivotally mounted in said bin to suspend a tip at an opposite end thereof; and

    a traction wheel attached to said cantilever adjacent said tip, and including a traction surface around a perimeter thereof for frictionally dispensing said bill.

2. A dispenser according to claim 1 further comprising means for manually engaging said traction surface against said bill for translation thereof to eject said bill in part from said bin.

3. A dispenser according to claim 2 wherein said engaging means comprise said traction wheel being pivotally attached to said cantilever for selective rotation.

4. A dispenser according to claim 3 wherein said engaging means further comprise a plurality of circumferentially spaced apart notches in said wheel perimeter separating said traction surface into circumferential segments, with said notches being configured for manually rotating said wheel to engage said traction segments in turn upon said bill for sequential translation thereof.

5. A dispenser according to claim 4 wherein said notches are about as wide as corresponding ones of said traction surfaces.

6. A dispenser according to claim 4 wherein said traction wheel includes a bottom having a respective one of said traction surfaces for engaging a top of said bill, and said cantilever tip defines a gap relative to said wheel bottom and

bill top for guiding said bill upon dispensing thereof.

7. A dispenser according to claim 4 wherein said traction wheel is freely rotatable in opposite directions.

8. A dispenser according to claim 4 in combination with said till including a stack of said bills in said bin, and said bin includes an arcuate front ramp for guiding said dispensed bill upwardly from said bin.

9. An apparatus according to claim 8 wherein said ramp is knurled to frictionally restrain bills underlying said dispensed bill.

10. A method of operating said bill dispenser according to claim 4 comprising: lowering said cantilever to position said traction wheel atop said bill; and manually rotating rearwardly and pressing downwardly said traction wheel from atop thereof to partially dispense said bill forwardly.

11. A method according to claim 10 further comprising manually pulling said partially dispensed bill to rotate said wheel by friction therefrom and autofeed a lower bill directly beneath said dispensed bill.

12. A dispenser according to claim 3 wherein said engaging means further comprise:

    a base lever having a root for being pivotally mounted in said bin, and an opposite tip pivotally attached to said cantilever base at an obtuse angle;

    a spring extending between said base lever and cantilever to retract said cantilever toward said base lever; and

    a push pad attached to one of said levers for manually depressing downwardly said levers against force from said spring to translate said traction

wheel atop said bill for dispensing thereof.

13. A dispenser according to claim 12 wherein said engaging means further comprise a ratchet attached to said traction wheel, and a pawl attached to said cantilever and engaging said ratchet.

14. A dispenser according to claim 13 wherein said ratchet and pawl are configured to prevent rotation of said traction wheel in a forward direction upon depression of said pad, and permit rotation of said traction wheel in a reverse direction to roll freely atop said bill.

15. A dispenser according to claim 14 further comprising a fork pivotally mounted at a base end to said bin at said base lever root, and supporting said traction wheel 50 between spaced apart arms thereof.

16. A dispenser according to claim 15 wherein:

    said traction wheel 50 includes a bottom wherein a portion of said traction surface engages a top of said bill; and

    said fork arms have distal ends defining a gap relative to said wheel bottom and bill top for guiding said bill upon dispensing thereof.

17. A dispenser according to claim 14 in combination with said till including a stack of said bills in said bin, and said bin includes an arcuate front ramp for guiding said dispensed bill upwardly from said bin.

18. A method of operating said dispenser of claim 14 comprising:

    lowering together said cantilever and base lever to position said traction wheel atop said bill; and

    depressing said push pad downwardly to extend said base lever and

cantilever against retraction force from said spring, and for translating forwardly said traction wheel to frictionally engage and dispense said bill.

19. A method according to claim 18 further comprising removing depression force from said push pad and allowing said spring to retract said cantilever against said base lever.

1 ABSTRACT OF THE DISCLOSURE

2 CASH DRAWER BILL DISPENSER

3 A bill dispenser includes a cantilever and traction wheel attached thereto.  
4 The wheel includes a traction surface around a perimeter thereof for frictionally  
5 engaging a currency bill. Movement of the traction surface atop the bill is used  
6 for dispensing the bill from its bin.

## DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

my residence, post office address and citizenship are as stated below next to my name;

I verily believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **CASH DRAWER BILL DISPENSER** (Docket No. 7979), the specification of which

X is attached hereto.

\_\_\_\_ was filed on \_\_\_\_\_ as  
Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_.  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed: **None**

Prior Foreign Application(s)	Priority Claimed
------------------------------	------------------

(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
----------	-----------	------------------------	-----	----

(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
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I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which

occurred between the filing date of the prior application and the national or PCT international filing date of this application: **None**

(Application Serial No.) (Filing Date) (Status) (Patented, Pending, Abandoned)

(Application Serial No.) (Filing Date) (Status) (Patented, Pending, Abandoned)

And I hereby appoint:

Paul W. Martin of Dayton, Ohio, Registration No. 34870, and  
Douglas S. Foote of Dayton, Ohio, Registration No. 31013.

my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. I hereby expressly waive my right to revoke the Power of Attorney granted above. Address all telephone calls to Paul W. Martin at telephone number (937) 445-2990. Address all correspondence to Paul W. Martin, NCR Corporation, Intellectual Property Section, Law Department, ECD-2, 101 W. Schantz Avenue, Dayton, Ohio 45479-0001.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor Craig E. Maddox  
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**FIG. 1**

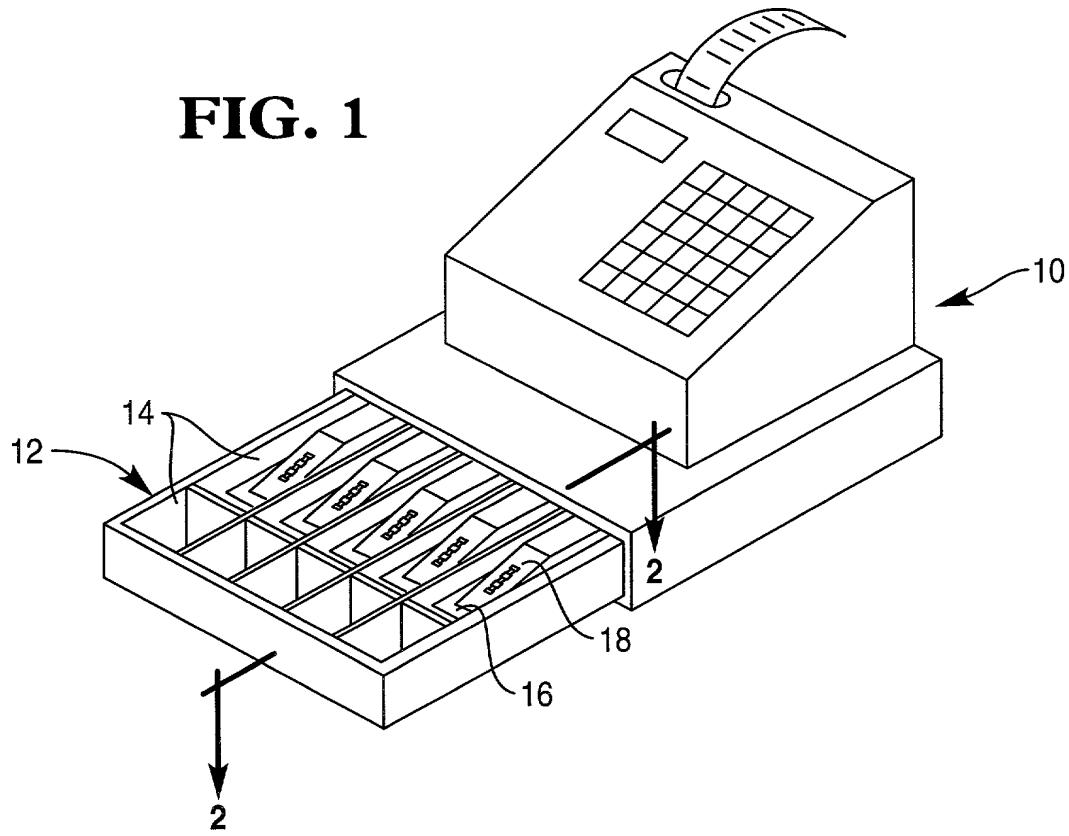


FIG. 2

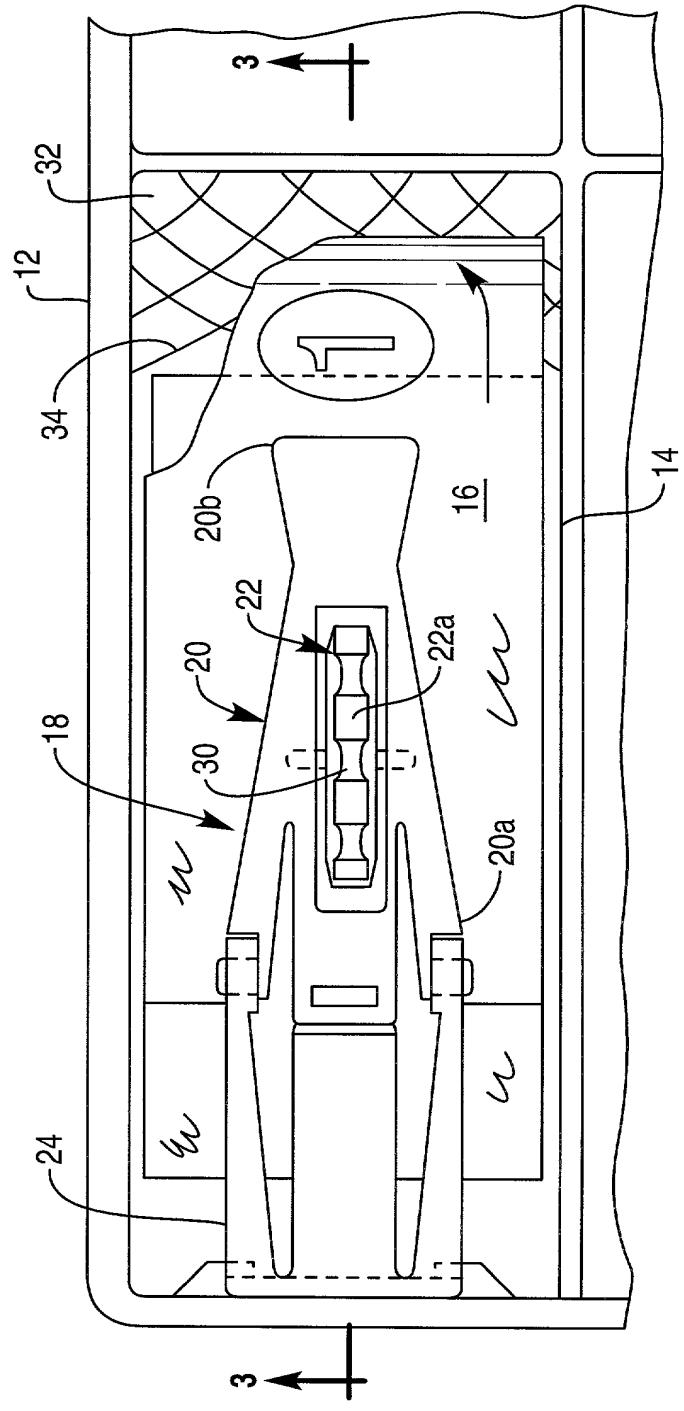


FIG. 3

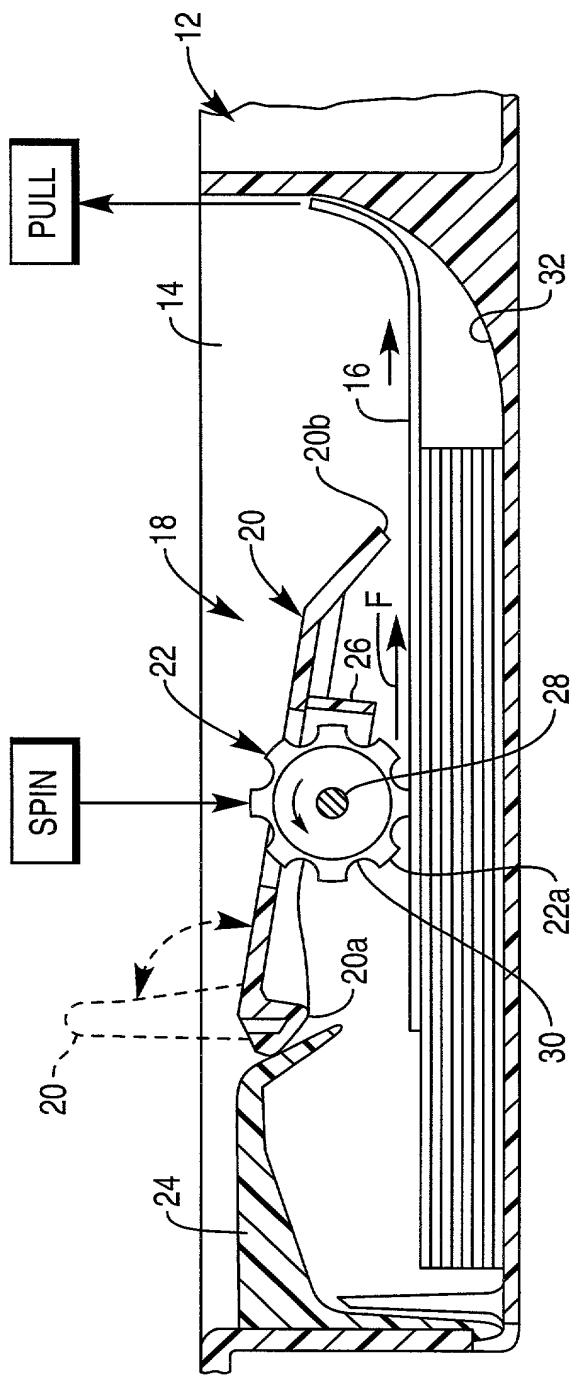
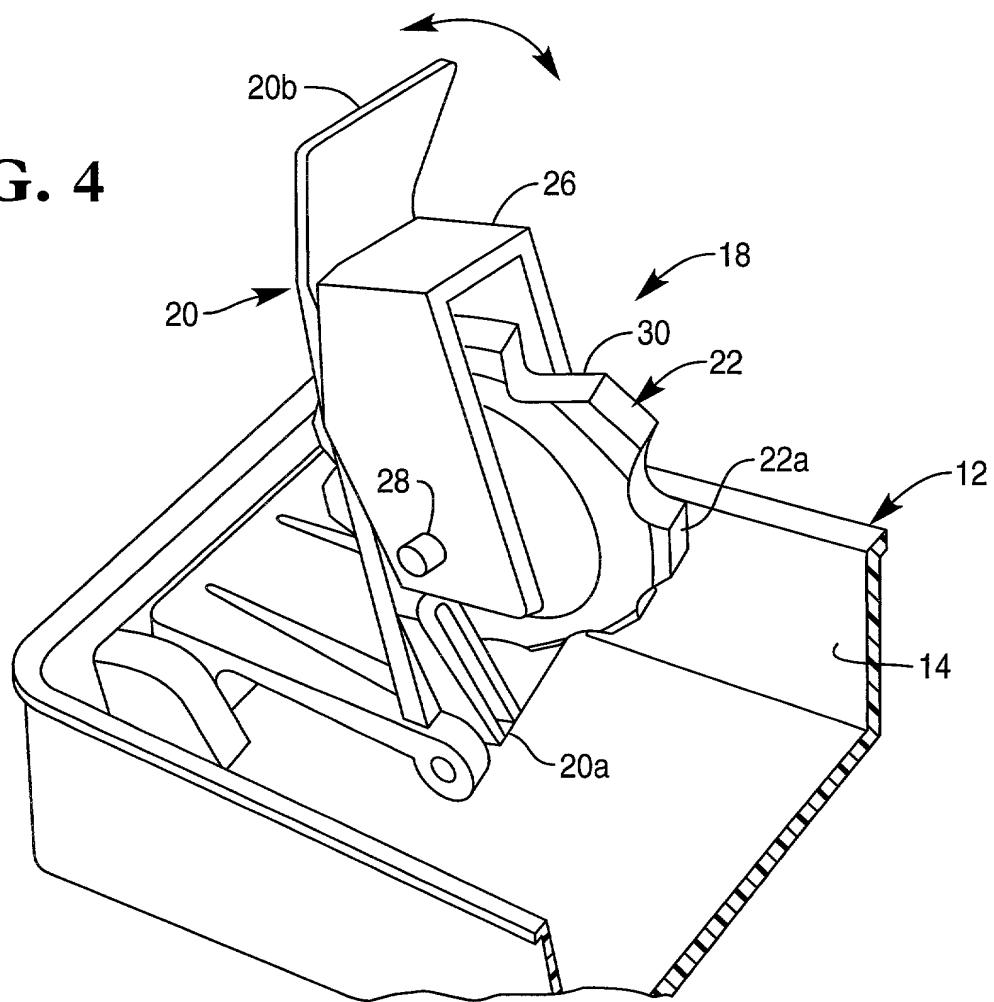
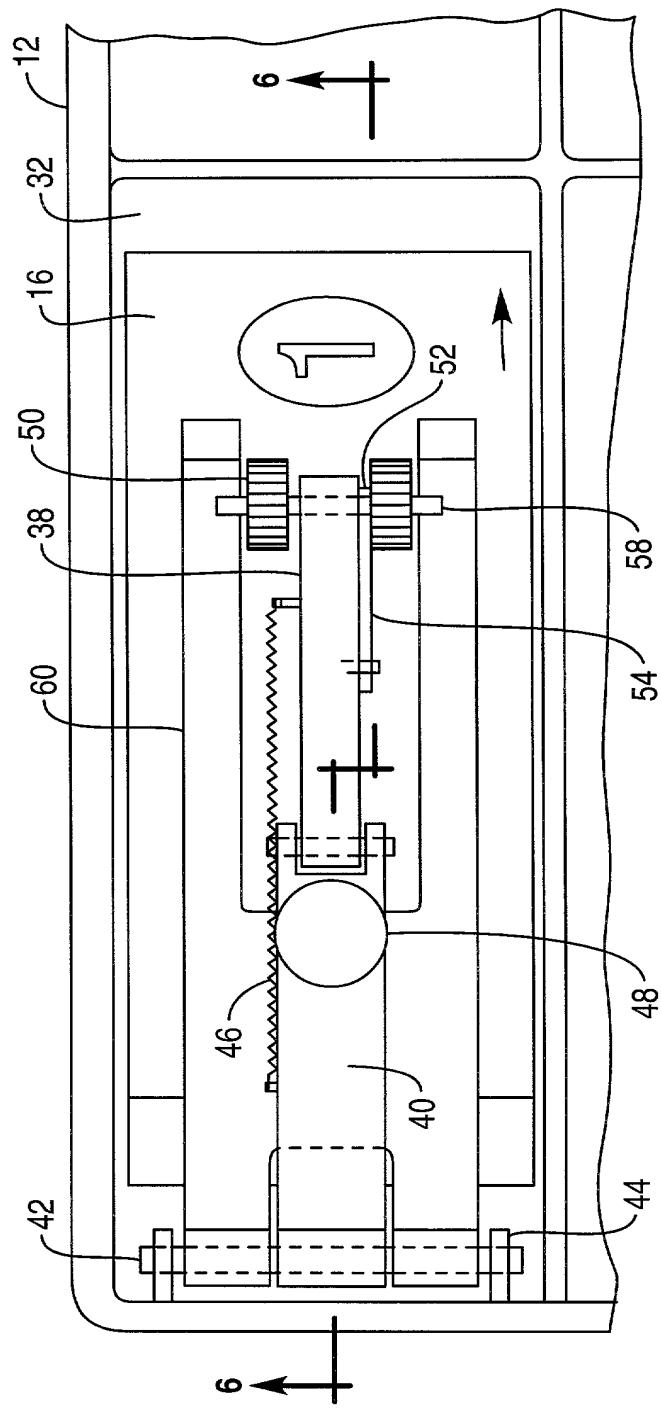


FIG. 4



**FIG. 5**



**FIG. 6**

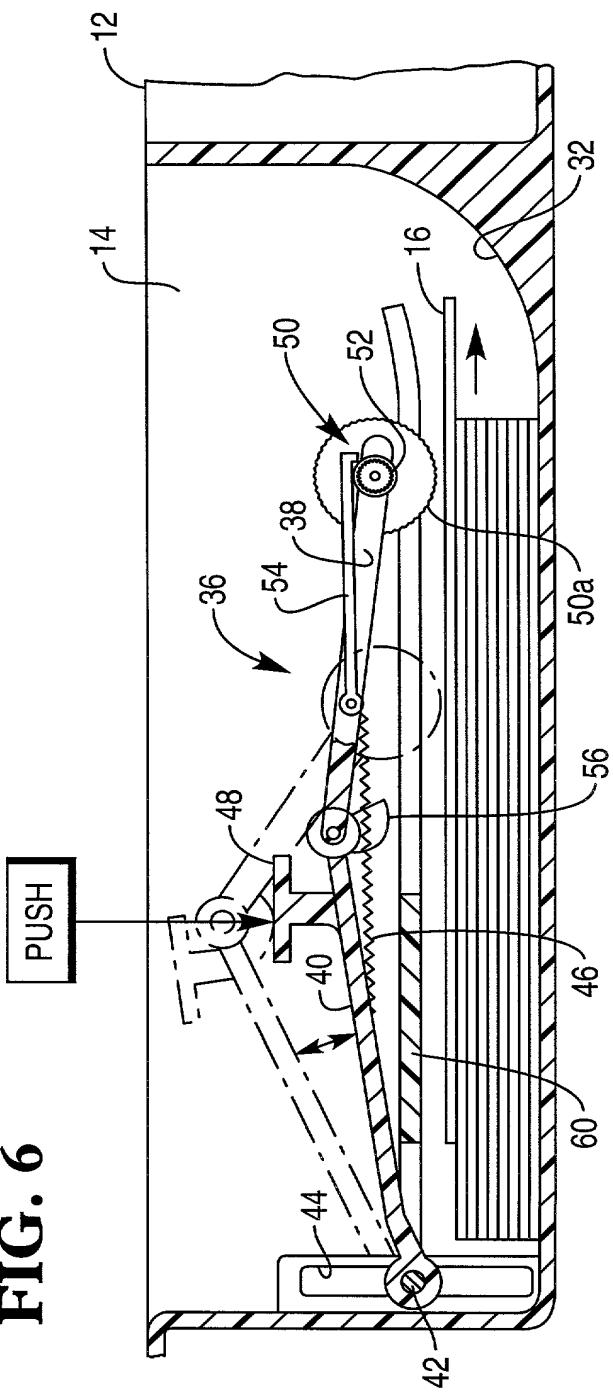


FIG. 7

